

CLAIMS

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1. A multimodal polyethylene composition for pipes,
5 which multimodal polyethylene has a density of
0.930-0.965 g/cm³ and an MFR₅ of 0.2-1.2 g/10 min,
characterised in that the multimodal poly-
ethylene has an M_n of 8000-15000, an M_w of 180-330 x 10³,
and an M_w/M_n of 20-35, said multimodal polyethylene
10 comprising a low molecular weight (LMW) ethylene homo-
polymer fraction and a high molecular weight (HMW)
ethylene copolymer fraction, said HMW fraction having a
lower molecular weight limit of 3500, and a weight ratio
of the LMW fraction to the HMW fraction of (35-55):(65-
15 45).

2. A multimodal polymer composition as claimed in
claim 1, wherein the multimodal polymer is a bimodal
polyethylene produced by (co)polymerisation in at least
two steps.

3. A multimodal polymer composition as claimed in
claim 1, wherein the ethylene copolymer of the HMW
fraction is a copolymer of ethylene and a comonomer
selected from the group consisting of 1-butene,
1-hexene, 4-methyl-1-pentene, and 1-octene.

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4. A multimodal polymer composition as claimed in
any one of claims 1-3, wherein the amount of comonomer is
0.4-3.5 mol% of the multimodal polymer.

5. A multimodal polymer composition according to any
of claims 1-4, having a weight ratio of the LMW fraction
30 to the HMW fraction of (43-51):(57-49).

6. A multimodal polymer composition as claimed in
any one of claims 1-5, wherein the multimodal polymer has
an MFR₅ of 0.3-1.0 g/10 min.

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7. A multimodal polymer composition as claimed in
35 claim 1, wherein the polymer is obtained by slurry poly-
merisation in a loop reactor of a LMW ethylene homo-

polymer fraction, followed by gas-phase polymerisation of a HMW ethylene copolymer fraction.

8. A multimodal polymer composition as claimed in claim 7, wherein the slurry polymerisation is preceded by a prepolymerisation step.

9. A multimodal polymer composition as claimed in claim 8, wherein the polymer is obtained by prepolymerisation in a loop reactor, followed by slurry polymerisation in a loop reactor of a LMW ethylene homopolymer fraction, and gas-phase polymerisation of a HMW ethylene copolymer fraction.

10. A multimodal polymer composition as claimed in any one of claims 7-9, wherein polymerisation procatalyst and cocatalyst are added to the first polymerisation reactor only.

11. A multimodal polymer composition as claimed in claim 10, wherein the polymerisation catalyst is a Ziegler-Natta type catalyst.

12. A pipe characterised in that it is a pressure pipe comprising the multimodal polymer composition according to any one of the preceding claims, which pipe withstands a pressure of 8.0 MPa gauge during 50 years at 20°C (MRS8.0).

13. A pipe as claimed in claim 12, wherein the pipe is a pressure pipe withstanding a pressure of 10 MPa gauge during 50 years at 20°C (MRS10.0).

14. A pipe as claimed in claim 12 or 13, wherein the pipe has a rapid crack propagation (RCP) S4-value of -1°C or lower.

15. A pipe as claimed in claim 14, wherein the pipe has a rapid crack propagation (RCP) S4-value of -7°C or lower.